

December 2, 2010

**VIA ELECTRONIC FILING**

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

**Re: Ex Parte Notice**

**WT Docket No. 10-133**

**ET Docket No. 10-123**

**PS Docket No. 06-229**

Dear Ms. Dortch:

On December 1, 2010, Steve Sharkey and Gary Jones of T-Mobile USA, Inc. (“T-Mobile”) and the undersigned met with Julius Knapp, Ira Keltz, Ronald Repasi, Alan Stilwell, Geraldine Matisse, Mark Settle, and Michael Ha, all of the Office of Engineering and Technology, regarding the above-captioned proceedings. T-Mobile’s presentation is summarized in the attached slide deck, which was also provided to the Commission participants in the meeting.

To amplify one of the points we presented, T-Mobile respectfully requests that the Commission’s impending annual report on competition in the wireless industry again recognize the high value of spectrum below 1 GHz and the currently concentrated nature of the holdings in that band. As the FCC recognized in the 14<sup>th</sup> *Wireless Competition Report*, lower-frequency spectrum possesses superior propagation characteristics that create certain advantages in the provision of mobile wireless broadband service, especially in rural areas.<sup>1/</sup> Because lower band

---

<sup>1/</sup> *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 09-66, Fourteenth Report, 25 FCC Rcd 11407, ¶ 4 (“14<sup>th</sup> Wireless Competition Report”); see also *id.* at ¶ 269 n.731 (citing *United States of America v. AT&T Inc. and Dobson Communications Corp.*, Competitive Impact Statement (filed Oct. 30, 2007) (citation omitted)) (“...the propagation characteristics of [1900 MHz PCS] spectrum are such that signals extend to a significantly smaller area than do 800 MHz cellular signals. The relatively higher cost of building out 1900 MHz spectrum, combined with the relatively low population density of the areas in question, make it unlikely that competitors with 1900 MHz spectrum will build out their networks to reach the entire area served by the two 800 MHz Cellular providers.”).

**Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.**

BOSTON | WASHINGTON | NEW YORK | STAMFORD | LOS ANGELES | PALO ALTO | SAN DIEGO | LONDON

spectrum can transmit over longer distances, given equal transmitter characteristics, than higher frequencies, for instance, each cell site in the lower frequencies is capable of reaching more customers. For commercial vendors, this translates to lower capital costs in the form of less infrastructure and fewer needed cell sites. T-Mobile estimates that buildout of 700 MHz spectrum would require significantly fewer sites than needed to build out AWS-1 spectrum.<sup>2/</sup> Lower band spectrum also allows for better coverage than upper band spectrum at substantially the same transmission power, providing better building penetration (of particular importance for emergency responders and E-911 services) at less expense to the carrier and therefore lower cost to consumers. This is also especially relevant for carriers in rural environments, as the 14<sup>th</sup> *Wireless Competition Report* noted, because topography and utility services can otherwise limit the carrier's ability to "fill in" sites.

Although a mixture of lower and upper band spectrum is optimal for building competitive high speed mobile broadband networks, making more spectrum available in the lower bands would be especially effective in promoting competition in the wireless marketplace, as T-Mobile has described in past filings before the Commission.<sup>3/</sup> There are certain circumstances where upper band spectrum is as effective as, or preferred to, lower band spectrum in providing competitive services, particularly for enhancing capacity in highly populated areas. As noted above, however, lower band spectrum provides a variety of critical spectral advantages that are not available from spectrum in the upper bands.

The marketplace has recognized this advantage by placing a premium on 700 MHz spectrum, as evidenced in the winning bids in Auction 73. The provisionally winning bids for the A, B, C, and E 700 MHz Block licenses exceeded the aggregate reserve prices for those blocks, raising a total of nearly \$19 billion in net winning bids. On the other hand, the auction of 50 percent *more* spectrum in the Advanced Wireless Service ("AWS-1") band raised \$5 billion *less* than the 700 MHz Auction.<sup>4/</sup> AT&T's recent reported bid of \$1 billion for Qualcomm's MediaFLO spectrum at 716-722 MHz – a 40% premium over what Qualcomm paid for this unpaired block<sup>5/</sup> – underscores the value of lower band spectrum.

---

<sup>2/</sup> See Comments of T-Mobile USA, Inc., GN Docket No. 09-51 *et al.*, NBP Public Notice # 26 at 11 (filed Dec. 22, 2009).

<sup>3/</sup> See, e.g., Letter to Marlene H. Dortch, Secretary, FCC, from Kathleen O'Brien Ham, T-Mobile, WT-Docket Nos. 09-66 & 06-150 (filed Apr. 26, 2010); Letter to Marlene H. Dortch, Secretary, FCC, from Kathleen O'Brien Ham, T-Mobile, WT-Docket Nos. 09-66 & 06-150 (filed June 9, 2010) (acknowledging the value of higher band spectrum and noting that nearly all of T-Mobile's spectrum is above 1 GHz).

<sup>4/</sup> See *Auction of 700 MHz Band Licenses Closes, Winning Bidders Announced for Auction 73*, Public Notice, 23 FCC Rcd 4572, at Attachment A (2008); *Auction of Advanced Wireless Service Licenses Closes, Winning Bidders Announced for Auction 66*, Public Notice, 21 FCC Rcd 10521 (2006).

<sup>5/</sup> "Qualcomm in talks to sell spectrum to AT&T – report," *Telecompaper Americas* (Nov. 22, 2010).

December 2, 2010

Page 3

Unfortunately, as the Commission found earlier this year, the vast bulk of lower band spectrum is in the hands of the two largest carriers.<sup>6/</sup> Promoting competition is a central objective of the Commission's policymaking.<sup>7/</sup> In order to fulfill this responsibility, the Commission must make more low band spectrum available to providers other than the two largest carriers. It can do so by commercially auctioning the 700 MHz D Block and moving expeditiously in the rulemaking proceeding initiated earlier this week to facilitate the most efficient use of the UHF and VHF TV bands.<sup>8/</sup>

Pursuant to section 1.1206(b) of the Commission's rules, a copy of this letter and attachment are being filed electronically with the Office of the Secretary for inclusion in the above-referenced dockets and served electronically on the Commission participants in the meeting.

Please direct any questions regarding this filing to the undersigned.

Sincerely,

/s/ Russell H. Fox

Russell H. Fox

Attachment

cc: (with attachment)  
Julius Knapp  
Ira Keltz  
Ronald Repasi  
Alan Stilwell  
Geraldine Matisse  
Mark Settle  
Michael Ha

---

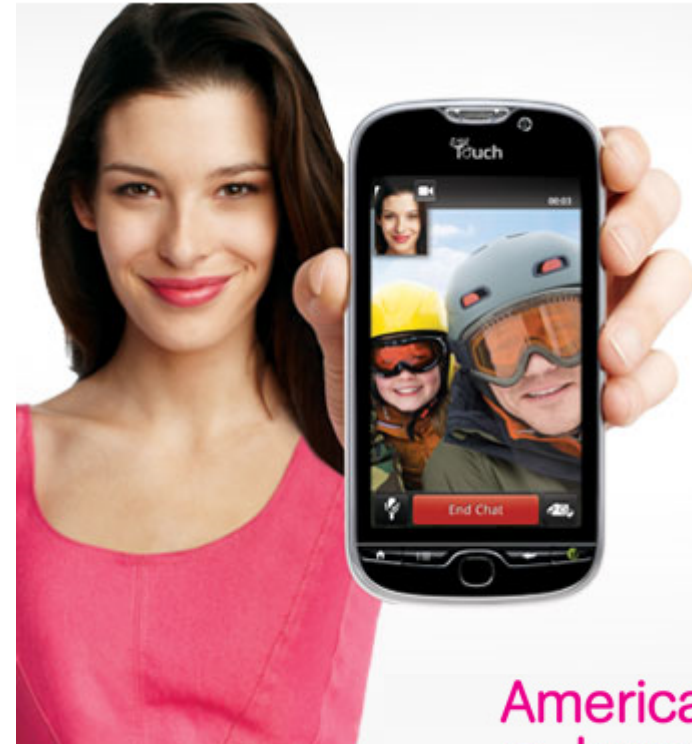
<sup>6/</sup> 14<sup>th</sup> *Wireless Competition Report*, ¶ 4 (2010) (noting that “[a] significant portion of the spectrum below 1 GHz is held by the two largest providers [AT&T, Inc. and Verizon Wireless]: 67 percent of the 700 MHz band, and 91 percent of the Cellular band, based on megahertz-POPs.”); *id.* ¶ 267.

<sup>7/</sup> See *id.* ¶ 1 (“Promoting competition is a fundamental goal of the Commission’s policymaking...[because it] lead[s] to lower prices and higher quality for American consumers, and produc[es] new waves of innovation and investment in wireless networks, devices, and services.”).

<sup>8/</sup> *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, ET Docket No. 10-235, Notice of Proposed Rulemaking, FCC 10-196 (rel. Nov. 30, 2010).

# T-Mobile's 4G Network and the Importance of Low Band Spectrum

stick  
together®



America's  
largest  
**4G**  
network™

---

**T** · · Mobile®

# Introduction to T-Mobile's 4G Network

- T-Mobile's Fourth Generation Network
- What others have to say...
- 4G enabled devices
- 4G coverage map
- T-Mobile's network build out story

# T-Mobile's Fourth Generation Network

## Speed:

- Theoretical peak throughput speeds of 21Mbps – up to three times the speeds of standard 3G with much lower latency than 3G networks
- Speeds that are on par with today's WiMAX technology and are expected to be roughly equivalent to LTE technology

## Breadth:

- Largest 4G network in the U.S. today – reaching over 80 major metropolitan areas across the U.S.
- On pace to reach 200 million people in 100 major metropolitan areas by end of 2010

## Choice of Devices & Experience:

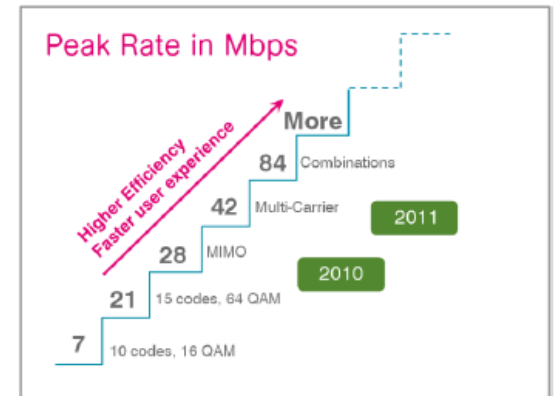
- Variety of 4G devices including the T-Mobile® G2™, myTouch® 4G, and Dell™ Inspiron™ Mini 10 4G, as well as webConnect® Rocket™ 2.0 Laptop Stick

## Customer Value:

- Unlike some of our competitors, we're not charging customers more for 4G and HSPA+ technology

## HSPA+ Evolution:

- Next year, T-Mobile is planning to upgrade the network to support even faster 4G speeds (theoretical peak speeds of 42 Mbps); expected to double the average and peak data rates



# What others have to say...

□ “Consumers do not understand the technical alphabet soup of technologies involved in 4G, but for our purposes we define WiMAX, LTE and HSPA+ as 4G technologies. HSPA+ is evolving a far more ambitious and long-term road map than was originally envisioned. T-Mobile is using an upgrade to HSPA+ to deliver faster 4G speeds today and is quickly bringing a number of HSPA+ devices to market that greatly enhance the mobile data experience for its customers.” – **Chris Nicoll, Yankee Group**

□ “Yankee Group reports that Verizon's unofficial 4G LTE results land around 8.5 Mbps, and the company promises a range of 5 to 12 Mbps. If T-Mobile is smart, it will talk in numbers, since its HSPA+ network can already meet — or beat — these real-world results.” – **MSNBC.com**

□ “T-Mobile's HSPA+ *does* deliver faster performance, no doubt. I have a myTouch 4G smartphone on hand and just this week it reached download speeds in excess of 5.3Mbps. That's fast. The quickest download on my Verizon Wireless MiFi: 1.8Mbps.” – **InformationWeek**

□ “While Sprint and AT&T are quick to challenge T-Mobile's 4G assertion, T-Mobile has just as much right to call its network 4G as any of the other wireless providers.” – **PC World**

□ “That means every 4G network currently being deployed in the US is an impostor — so T-Mobile has just as much a right to promote its HSPA+ network as 4G as its competitors. In a recent data speed showdown, T-Mobile's network actually ranked higher than Sprint's 4G.” – **VentureBeat**

# 4G Enabled Devices



**T-Mobile® myTouch® 4G**



**T-Mobile® G2™ with Google™**



**T-Mobile® Rocket™ 2.0  
4G Laptop Stick**



**Dell™ Inspiron™ Mini 10 4G**

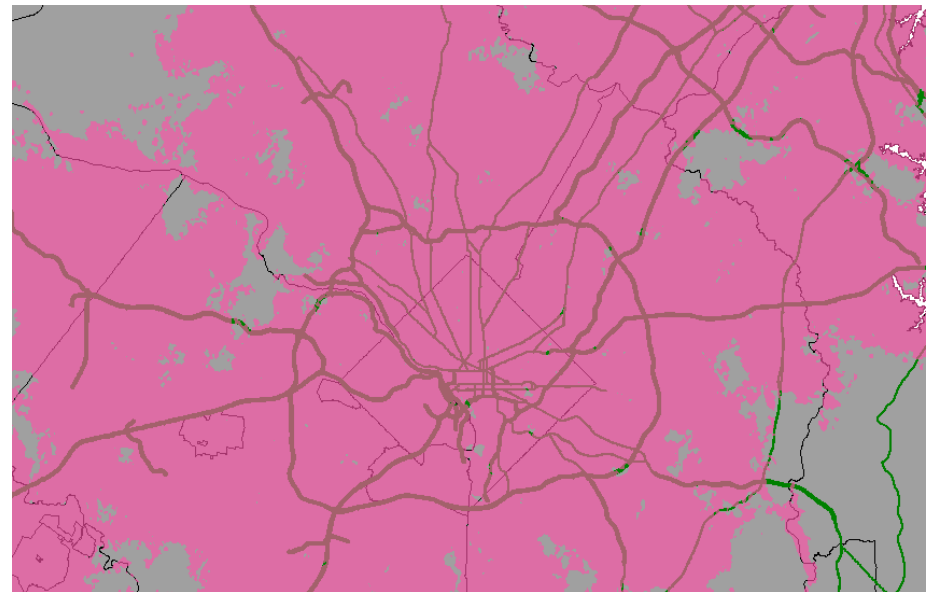


# 4G markets and DC area coverage Map



**As of Nov. 23, 2010**

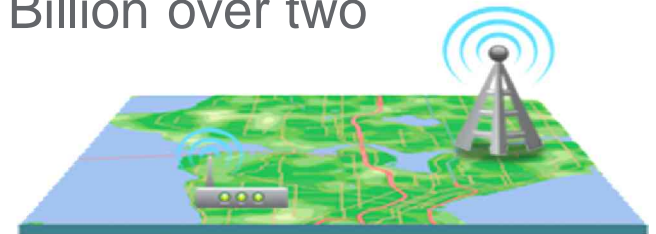
-Markets identified in blue are coming soon



-Current 4G coverage area for the Washington DC area

# Our network build out story

- T-Mobile rolled out 3G using UMTS and HSPA technology:
  - Built 3G network to cover 212M people in approximately 24 months
  - Coordinated network deployment with pre-existing commercial and federal spectrum users
- Built 4G HSPA+ network overlay onto the 3G network footprint:
  - Significant engineering investments using existing 3G sites
  - Combined network investment of over \$12 Billion over two years

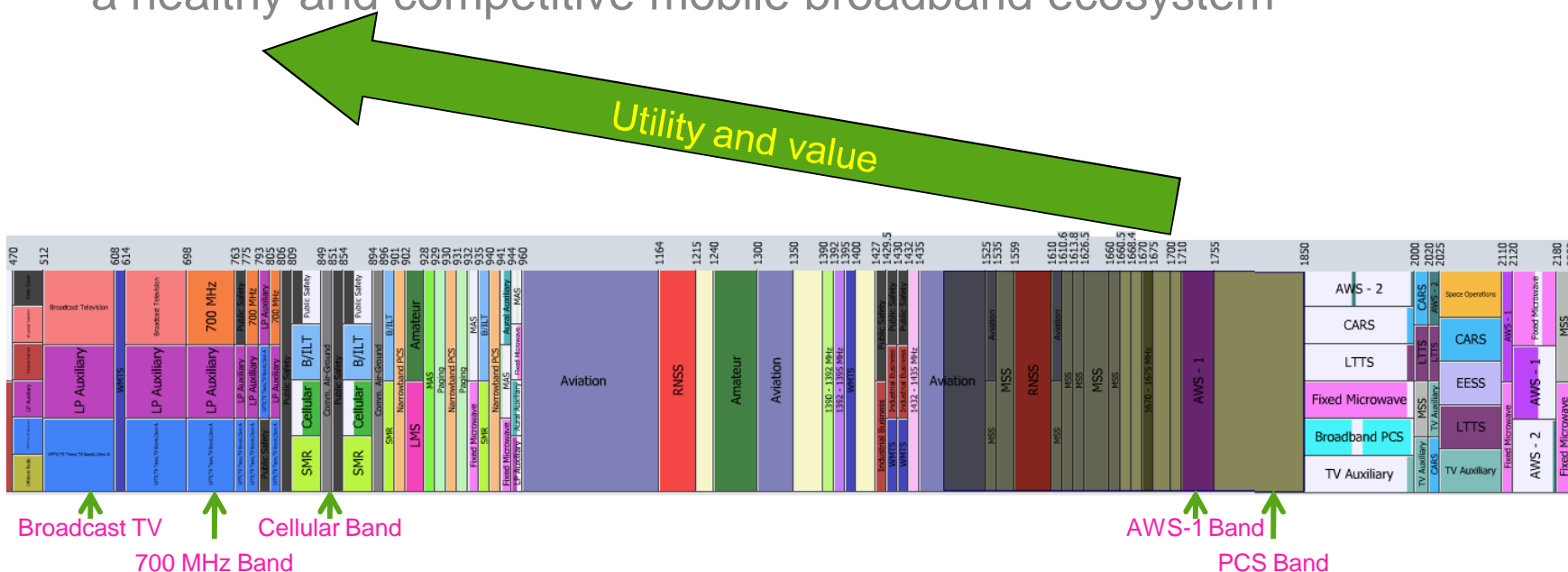


# Getting more Spectrum for Mobile Broadband

- More spectrum—*the right spectrum*—is needed
- Advantages of low band spectrum
- Mix of spectrum facilitates broadband capacity and coverage
- Low band spectrum holdings
- Valuations of low band spectrum
- Recommendations

# More spectrum – *the right spectrum* – is needed

- T-Mobile applauds the efforts of the Commission, the Administration, and Congress to identify more spectrum for mobile broadband
  - 300 MHz within five years and 500 MHz within ten years necessary to meet increasing demand
- However, making the right spectrum available is critical to ensuring a healthy and competitive mobile broadband ecosystem



# Advantages of low band spectrum

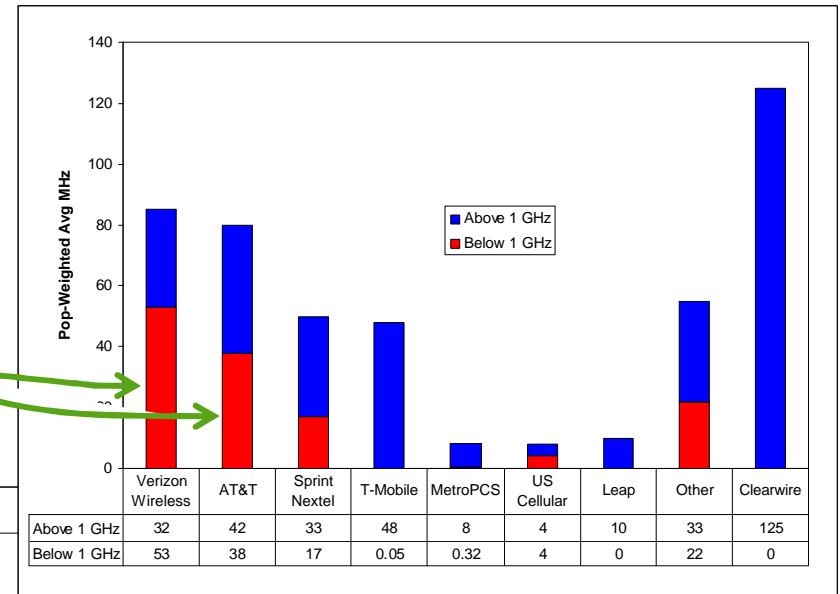
- Low band spectrum (below 1 GHz) provides several advantages:
  - Longer distances for the same transmission power level
  - Better penetration for buildings (of particular importance for emergency responders and E-911 services)
  - Enables network deployment in rural areas
- The FCC and other regulators have recognized the inherent value of low band spectrum for mobile broadband deployment:
  - In the *14th Mobile Wireless Competition Report* the Commission noted that, **“lower frequency bands – such as the 700 MHz and Cellular bands – possess more favorable intrinsic spectrum propagation characteristics than spectrum in higher bands.”** ¶ 269
  - Likewise, DOJ has noted the difference in valuation of lower band spectrum: **“the propagation characteristics of [1900 MHz PCS] spectrum are such that signals extend to a significantly smaller area than do 800 MHz cellular signals.”** *United States of America v. AT&T Inc. and Dobson Communications Corporation*, Competitive Impact Statement (filed Oct. 30, 2007).

## Mix of spectrum facilitates broadband capacity and coverage

- A mixture of low and upper band spectrum is important to building competitive high speed mobile broadband networks:
  - Low band spectrum allows for greater breadth of coverage, particularly in rural environments when topography and/or utility services limit the ability to add “fill in” sites
  - Upper band spectrum works well for urban environments where network capacity depth is often a bigger issue than coverage
- But don't just take our word, read what others have to say about the benefits of low band spectrum:
  - **“I will tell you in my career in wireless I have never had the opportunity to have this kind of spectrum and be able to use it.”** Lowell McAdam, Verizon Communications - EVP, President and CEO Verizon Wireless, at Barclays Capital Communications, Media and Technology Conference, May 26, 2010 (referring to Verizon's 700 MHz band spectrum holdings)
  - **“Both low and high spectrum bands are beneficial for mobility. Lower frequency bands (below 1 GHz) have propagation benefits and higher frequency band (1-3 GHz) can achieve greater improvements in capacity.”** AT&T *ex parte* filing at 29, WT Docket 06-150, *et al.*, Oct. 25, 2010.

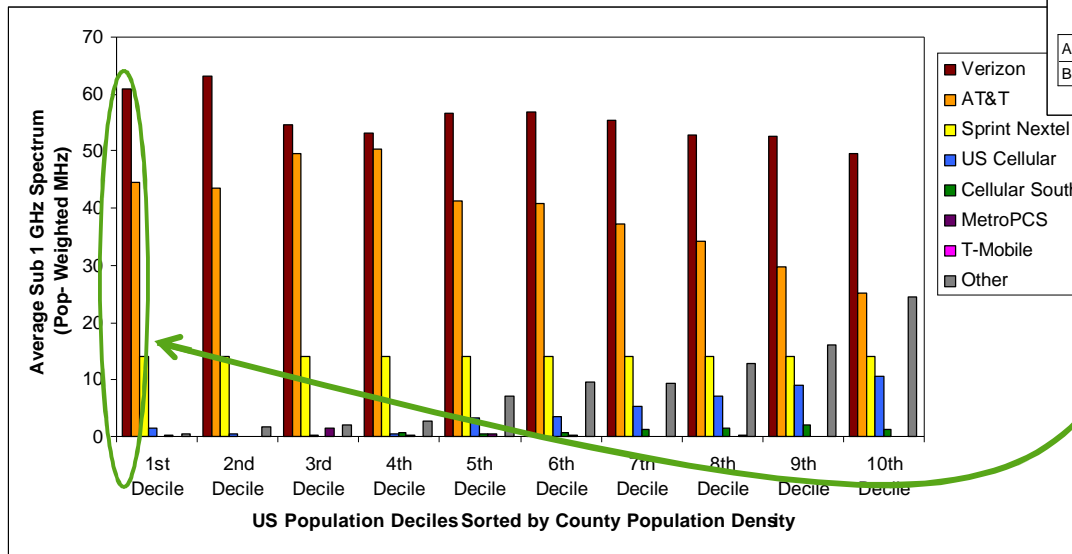
# Low Band Spectrum Holdings

- As pointed out in the *14th Mobile Wireless Competition Report*, much of the low band spectrum is held by only two carriers



Source: *14th Mobile Wireless Competition Report* Chart 41.

- Further, these two carriers also dominate the Pop-Weighted MHz metric



Source: *14th Mobile Wireless Competition Report* Chart 42.

# Valuations of low band spectrum

The competitive value of low band spectrum can be quantified:

- The results of Auction 73 demonstrate the premium value placed on 700 MHz spectrum in all markets. The provisionally winning bids for the A, B, C, and E Block licenses raised nearly \$19 billion. By contrast, the auction of 50 percent more spectrum in the higher frequency AWS-1 band raised \$5 billion less than Auction 73
- On a MHz-pop basis, the average price for the 700 MHz spectrum was \$1.28 per MHz-pop. This unit price was more than twice the average price of \$0.54 per MHz-pop for AWS spectrum auctioned in 2006



# Recommendations

- Work with NITA and Congress in making more spectrum available for mobile broadband
  - Encourage NTIA to examine federal spectrum below 3 GHz for mobile broadband
- The upcoming 15<sup>th</sup> Wireless Mobile Competition Report should continue to recognize the utility and value of low band (below 1 GHz) spectrum to mobile broadband competition
  - Low band spectrum inputs need to be evaluated as distinct from upper band spectrum inputs
- Make more low band spectrum available
  - **Immediate action:** Start the necessary rulemaking proceedings to auction the 700 MHz D Block that is essential to making low band spectrum available for competitive carriers and constructing public safety broadband networks
  - **Long term action:** Incentive auctions for spectrum currently used by broadcast TV could be a good source of low band spectrum; until then there is a shortage of low band spectrum